

Dear FCC Commissioners ---

If you only have time to read this paragraph: Thank you for considering strong rules to make net neutrality binding on ALL market players. Consumers and small business owners like me benefit from innovations that entrenched internet providers may not like. I know Comcast, AT&T, Verizon and other large companies are lobbying you in favor of their position, but please remember that all of us customers comes first. Instead of allowing internet providers to "manage" their networks by forbidding or limiting competitive traffic like Bittorrent, Skype, Google Voice and other peer-to-peer network protocols, the FCC should make clear that these and future innovations should be treated on par with all other internet traffic. Net neutrality must be the rule of the road. I disapprove of regulated monopolies and walled gardens in general. Please keep the internet as it was meant to be - a free and open place to exchange ideas and information. Thank you.

If you have time to understand why I feel this way, thank you. Please read on:

In early 2008 I learned about Comcast's secret effort to "spike" Bittorrent traffic for its broadband customers. I was outraged then, and I remain so now. Comcast undertook those efforts without the knowledge or permission of its own paying customers, and contrary to its own terms of service and other published policies. Comcast did all that, despite the fact that I've been a loyal paying customer of theirs and their predecessors since 2000.

I am a small business owner. I have a home-based business selling many things online. However, my focus is on computer hardware that works with open-source software. To succeed in this space, I need to install and test a variety of Linux and BSD Unix-based ("Unix-like") operating systems, known as "distributions" or "distros". In the Linux and Unix communities, the most common way to obtain the latest distro is via bittorrent. This method is faster than receiving updates through the mail on CD or DVD, and faster than downloading the entire disc image from a single server.

Unix-like operating systems are open-source software, legal and freely available. The various Unix-like distros were created for various specific purposes, but largely as competitive alternatives to proprietary operating systems such as Microsoft Windows and Apple's Macintosh. I am sure companies such as Microsoft and Apple - and their supporters - would prefer that these alternatives would go away, so they would have less competition and higher profits in the marketplace.

There are normally no obstacles to obtaining and using Unix-like operating systems. However, I began having trouble in August 2007 whenever I would try to obtain fresh distros via bittorrent. The torrents would time out after just a minute or so, and would not resume, no matter what I did. It was very frustrating, and I gave up trying to obtain new distros through bittorrent. Instead, I found individual servers that hosted image files of the latest distros. The problems with this approach are that large downloads often time out, there are fewer such sites with these files, and any given server

may be quite slow. Often, the more eclectic distributions were simply unavailable for several weeks, until some kind soul decided to host it on his or her own server.

Comcast's sneaky campaign to squelch bittorrent traffic negatively affected my business, by forcing me to spend time, energy and other resources to find alternate sources for the software I needed. This in turn delayed many plans I had made, and made some plans impossible to execute. As a small business person with limited resources, one must always learn to adapt, improvise and overcome, but it is grossly unfair when one of your own service providers [Comcast] schemes behind your back to break your business model and interfere with your legitimate business plans.

In November 2007 I learned that someone had figured out how Comcast was misusing its Sandvine traffic management hardware (see <http://sandvine.com/>) to shut down bittorrent traffic, rather than simply throttling it down to a "manageable" level. As I researched these techniques further, it dawned on me that a much larger issue was at stake - the ability of customers to use an innovative protocol was being arbitrarily eliminated by a service provider that did not want to spend capital to upgrade its network. There appeared to be no way to ensure that Comcast or any other ISP could not simply decide to "kill off" whatever new protocol came along - such as bittorrent - for whatever reason.

It must be said that bittorrent has been used to illegally distribute copyrighted music and video files. However, I respect copyrights and patents, and I do not use bittorrent or any other protocols for anything illegal. As far as I know, I never have, and I certainly do not intend to in the future. I know very few people who make it a habit to steal such materials, online or otherwise.

Despite the fact that some people use some protocols for illegal purposes, that is no reason to eliminate the protocol. Many other internet protocols are used for a similar mix of 'good' and 'bad' purposes. To argue that bittorrent should be squelched or spiked is analogous to arguing that all vehicles should be mechanically restricted to a maximum speed limit because of a small percentage of careless or intoxicated drivers who behave badly. Public policy should not punish the large majority for the transgressions of a few.

It must also be noted that, while predicting growth in internet traffic is imprecise, the overall trends and many of the sub-trends are still predictable - especially over one, three and five year horizons. Current traffic can be found at a number of sites, for example at <http://www.internetworldstats.com/stats.htm>. Trends can also be seen by visiting such sites as <http://www.techsectorweb.com/2008/03/internet-traffic.html>, <http://www.discovery.org/a/4428>, and <http://podtech.wordpress.com/2009/02/02/internet-traffic-explosion-by-2015-next-phase-is-rich-media-for-infrastructure-20/>.

A large ISP such as Comcast obviously has access to far more rigorous and detailed predictions. It is

clearly in their interest to closely monitor such demand growth. But instead of accepting and adapting its network to meet the needs of its internet customers, Comcast chose instead to resist and subvert what many millions of people clearly want to do.

For broadband to continue developing smoothly here in the United States, the underlying infrastructure must keep pace. Investments in the network must go hand in hand with predictions about future demand. One of the most important infrastructure standards is DOCSIS, which has been coordinated by the International Telecommunications Union for a number of years. The ITU released the latest DOCSIS version, DOCSIS 3.0, in August 2006 (please see <http://en.wikipedia.org/wiki/DOCSIS>). In North America, DOCSIS 3.0 allows for individual downstream speeds of at least 170 megabits per second (Mbps), and upstream speed of 120+ Mbps. These speeds far exceed the current 5-10 Mbps rates that most cable companies - including Comcast - offer its customers. Ongoing real-world examples of speed testing are at <http://www.dslreports.com/archive> and <http://www.dslreports.com/speedtest?more=1>. I invite FCC Commissioners and staff to monitor some of these pages over time, to see how the US ! market compares to other net-savvy countries, like Canada, Norway and South Korea. Anyone can see that we are not keeping up with these and other nations when it comes to throughput speeds.

Rather than offer tiered levels of broadband internet service, or invest in DOCSIS 3.0 and other network infrastructure to allow its customers to achieve 100+ Mbps transfer speeds, Comcast and other large broadband providers have chosen instead to artificially limit and throttle its customers' internet traffic and to spend its money elsewhere.

For example, Comcast decided in December 2009 to buy NBC Universal for \$30 billion (see <http://www.washingtonpost.com/wp-dyn/content/article/2009/12/03/AR2009120300947.html> for example). Despite the fact that peer-to-peer traffic is what's growing and that network television and other forms of broadcast or 'top-down' traffic is declining, Comcast chose to invest in what's dying, instead of investing in what will certainly thrive the future. Instead of recognizing and embracing a peer-to-peer model of entertainment and information distribution, Comcast still clings to the old top-down broadcast model where a tiny club of elites decide what the vast majority of us should watch and hear. How arrogant. How paternalistic. How undemocratic!

Comcast chose to behave badly and they got caught. How many other companies have done similar things but got away with it? Since there are no laws or regulations to prevent protocol sabotage from happening again, what's to stop other internet providers from similar actions? Any ISP can discriminate against bittorrent or another standard it doesn't like, at any time. Does that make sense? There are thousands of internet standards and protocols. What's to stop any one company, government or group from banding together to weaken or sabotage whatever protocol they want, whenever they want?

Over time, if this kind of behavior is allowed to continue, at what point does the internet cease to be an inter-network of overlapping interoperable computer systems, data types and communications protocols? When exactly would the internet become just a disjointed group of proprietary fiefdoms governed by dominant market players and the unrestrained profit motive? When would that tipping point occur? Not a single internet customer I know, when you explain it to them clearly, would put up with such nonsense at all!

In any given area of the country, there is seldom more than one viable provider of truly broadband internet access. Due to this lack of choice, providers try to dictate throughput speeds and other terms of service. Instead of providing residential customers with flexible terms, guaranteed minimum throughput speeds and high service uptime levels, Comcast and other ISPs deceive people with misleading marketing like "up to 16Mbps download speeds". In truth, nobody ever obtains such speeds unless only one person is online on a given node, which never happens.

These 'islands of monopoly providers', such as Comcast, control large segments of the broadband market here in the U.S. Since there is little real competition in local markets, most ISPs offer straitjacket terms, take it or leave it with no room for negotiation. Tiered service levels should be one possible alternative. Forced unbundling of fiber to the home - offering the internet access without requiring the purchase of television or VOIP services - is another way the FCC should intervene, although I am certain AT&T, Verizon and major broadcasters would fight it vigorously.

Comcast has certainly fought the FCC on net neutrality. In February 2008 the FCC held an en banc hearing about Comcast's misbehavior in Cambridge, Massachusetts. Comcast, as you probably recall, was caught packing the meeting with its supporters and preventing the rest of the public from attending to voice their concerns. The nationwide outrage over this second example of egregious corporate misbehavior led to the second en banc hearing held in Palo Alto, California.

I care enough about this issue that I attended and spoke at that second hearing in April 2008. I felt it was my civic right and duty to speak up. So I did. In the short time that other members of the public and I had to address the Commissioners, we made clear that Comcast's conduct was entirely unacceptable and we called on the FCC to strengthen its net neutrality rules. My comments came toward the end of the day. In particular, I spoke about the inability to download Linux distributions, and about the absence of solid information regarding the large amount of dark fiber that could be made available to increase throughput speeds and lower access costs.

I respectfully request again that the FCC finalize strong rules that protect net neutrality. No IANA-recognized protocols or standards should be blocked, censored discriminated against. No internet access provider should be allowed to undertake any network management practices that hinder

innovative technologies, especially if those technologies compete against old business models and entrenched revenue streams.

We netizens should be free to use whatever device or web browser we want, not just Firefox and Opera, but also Safari, Konqueror and all the others. We should be able to use Google Phone, Skype, Vonage or any other calling software or protocol, on whatever network we choose. It's vital that the FCC finish its rulemaking to safeguard the open Internet. Hundreds of millions of Internet users -- people like me -- need net neutrality now.

As a registered and regular voter here in Pleasanton, California, I want to close by thanking you for your past support of net neutrality. Please continue to help bring about real change in this area. Please issue final rules that return us to a level playing field.

Thank you kindly for considering my point of view.